

REMARKS

Entry of the foregoing, reexamination and reconsideration of the subject application are respectfully requested in light of the amendments above and the comments which follow.

As correctly noted in the Office Action Summary, claims 2-6 were pending. By the present response, claims 2, 3 and 6 have been amended. Thus, upon entry of the present response, claims 2-6 remain pending and await further consideration on the merits.

Support for the foregoing amendments can be found, for example, in at least the following locations in the original disclosure: page 3, lines 23-26 and the original claims.

SPECIFICATION

The specification stands objected to on the grounds set forth on pages 2-3 of the Official Action. By the present response, the specification has been amended to address the informalities noted in the grounds for rejection. Thus, reconsideration and withdrawal of the objection is respectfully requested.

CLAIM OBJECTIONS

Claims 2 and 3 are objected to because of informalities. Claim 2 has been amended to correct its dependency. Thus, reconsideration and withdrawal of the objection is respectfully requested.

CLAIM REJECTIONS UNDER 35 U.S.C. §112

Claim 3 stands rejected under 35 U.S.C. §112, second paragraph on the grounds set forth on page 3 of the Official Action.

By the present response, applicant has amended claim 3 in a manner which, while not narrowing, addresses the above-noted rejection. Therefore, reconsideration and withdrawal of the rejection is respectfully requested.

CLAIM REJECTIONS UNDER 35 U.S.C. §103(a)

Claims 2-6 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 3,861,231 to F'Geppert (hereafter "*F'Geppert*") in view of U.S. Patent No. 4,677,870 to Alshareedah (hereafter "*Alshareedah*") on the grounds set forth on page 4 of the Official Action. For at least the reasons noted below, this rejection should be withdrawn.

The present invention is directed to a strengthened gear wheel and a method for producing the same. According to the present invention, each tooth of a strengthened gear wheel is fixed like a theoretical beam between end points through the use of strengthening rings, each shaped on its inside to conform with the outer toothed profile of the gear wheel.

A gear wheel formed according to the principles of the present invention is set forth in claim 4. Claim 4 recites:

4. A gear wheel having surrounding strengthening rings connected to the gear wheel teeth, wherein each tooth is fixed like a theoretical beam between two extreme points in that two strengthening rings, shaped on their insides in conformity with the gear wheel teeth, are fitted around the gear wheel.

According to another aspect, a method for strengthening a gear wheel is defined by

claim 6. Claim 6 recites:

6. A method for strengthening a gear wheel, wherein strengthening rings are placed around the gear wheel and connected to the gear wheel teeth, and wherein each tooth is fixed like a theoretical beam between two extreme points and two strengthening wheels each shaped on its inside in conformity with the gear wheel teeth, and are shrink-fitted around the gear wheel.

Neither *F'Geppert* nor *Alshareedah*, taken alone or in combination, disclose or even suggest the gear wheel and method recited by the presently claimed invention. *F'Geppert* is directed to a reinforced gear wheel. However, unlike the construction and method of the present invention, *F'Geppert* teaches insertion of a reinforcing plate or ring (24) about the periphery of a gear wheel to "achieve pressure contact with side face 26 of the gear body" (column 2, lines 46-49).

Therefore, the reinforcing plate or ring of *F'Geppert* engages the side faces of the gear teeth, and does not possess an inner periphery formed with a profile to mate or mesh with the teeth disposed on the gear wheel itself. Given the differences in construction, it would appear rather evident that the strengthening rings of the present invention more

firmly fix the teeth of the gear wheel between the two end points defined by the spaced-apart strengthening rings.

The above-described deficiency of *F'Geppert* is acknowledged in the grounds of rejection appearing on page 4.

Nonetheless, it is alleged that the above-described differences would have been obvious in view of the teachings of *Alshareedah*. In this regard, it is alleged that *Alshareedah* teaches "a strengthening ring that is shaped on its inside to conform with the gear wheel teeth." This assertion is respectfully traversed.

Alshareedah is directed to a forged spur gear with web-connected teeth. The inner periphery of the spur gear described by *Alshareedah* is disclosed as comprising a "hub opening 11 defined by collar 12 which extends laterally beyond face 13 of the gear . . . Keyway 14 is shown for receiving a key in operable manner for securing gear 10 on a mounting shaft . . ." (column 2, lines 10-13).

Thus, *Alshareedah* fails to disclose, or even suggest, any type of strengthening ring at all, much less one that is shaped on its inside to conform to an outer toothed profile of a gear wheel.

In addition, it is alleged on page 4 of the Official Action that the motivation for modifying the disclosure of *F'Geppert* is "to enable increasing tooth loading pressure to be withstood, as suggested by *Alshareedah* (US Pat. 4,677,870)." Upon review of the *Alshareedah*, applicant does not find support for the above-quoted assertion contained in the disclosure thereof. Thus, should the rejection be maintained, it is respectfully

requested that the specific portion(s) of *Alshareedah* be specifically identified as forming the basis for the grounds for rejection.

Moreover, it is alleged in the grounds for rejection that it would have obvious to one of ordinary skill in the art to have utilized the shrinking process producing a material-technical tensile/compressive strength within 80% of the 0.2% elastic elongation range of the material. While no prior art document has been identified in support of this assertion, it is nonetheless alleged that the above-mentioned claim limitation would have been obvious in light of the *In re Aller* decision. This assertion is respectfully traversed. Unlike the situation in *In re Aller*, and contrary to the assertions contained in the grounds for rejection, the prior art does not recognize the "general conditions" of the claim. Rather, the prior art is entirely devoid of any disclosure or suggestion concerning an appropriate use of a certain amount of the elastic elongation range of the material in order to perform a successful shrink-fitting operation. Thus, the rejection is improper for at least this additional reason.

In light of the above, reconsideration and withdrawal of the rejection is respectfully requested.

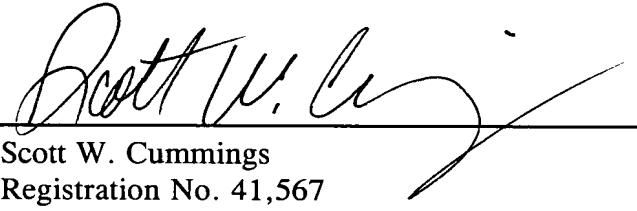
The remaining claims depend either directly or indirectly upon claims 4 and 6. Thus, these claims are also distinguishable over the applied prior art for at least the same reasons noted above.

CONCLUSION

From the foregoing, further and favorable action in the form of a Notice of Allowance is earnestly solicited. Should the Examiner feel that any issues remain, it is requested that the undersigned be contacted so that any such issues may be adequately addressed and prosecution of the instant application expedited.

Respectfully submitted,

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